

II. AMENDMENTS TO THE CLAIMS

The following listing replaces any and all prior listings of the claims:

1. (Currently amended) A computer-implemented security system for securing an electronic version of a nucleotide chain sequence, wherein the nucleotide chain sequence comprises at least a portion of a genome of an organism, the system comprising:

a computer hardware apparatus; and

a computer program that, when loaded and executed, controls the computer hardware apparatus such that it carries out:

identifying a sequence of at least one exon[[s]] and a sequence of at least one intron[[s]] in the nucleotide chain sequence;

selectively encrypting the sequence of only the at least one exon[[s]] identified in the nucleotide chain to provide security over a network; and

outputting the electronic version of the nucleotide chain sequence, including both the encrypted sequence of the at least one exon[[s]] and the unencrypted sequence of the at least one intron[[s]], wherein the encrypted sequence of the at least one exons ~~are~~ is subsequently decrypted by a secure process to regenerate the nucleotide chain sequence.

2. (Currently amended) The computer-implemented security system of claim 1, wherein the ~~system for~~ outputting further comprises ~~a system for~~ transmitting the encrypted sequence of the at least one exon[[s]] and the unencrypted sequence of the at least one intron[[s]].

3. (Currently amended) The computer-implemented security system of claim 2, wherein the ~~system for~~ transmitting of the encrypted sequence of the at least one exon[[s]] and the unencrypted sequence of the at least one intron[[s]] ~~includes~~ utilizes at least one XML document.

4. (Currently amended) The computer-implemented security system of claim 2, wherein the ~~system for~~ transmitting of the encrypted sequence of the at least one exon[[s]] and the sequence of the at least one unencrypted intron[[s]] ~~includes~~ utilizes web services.

5. (Currently amended) The computer-implemented security system of claim 1, wherein the ~~system for~~ selectively encrypting only the sequence of the at least one exon[[s]] utilizes cipher block chain encrypting.

6. (Currently amended) The computer-implemented security system of claim 2, wherein the computer program controls the computer hardware apparatus such that it further carries out comprising:

~~a system for~~ receiving the encrypted sequence of the at least one exon[[s]] and the unencrypted sequence of the at least one intron[[s]];

~~a system for~~ decrypting the encrypted sequence of the at least one exon[[s]]; and

~~a system for~~ regenerating the nucleotide chain from the decrypted sequence of the at least one exon[[s]] and the unencrypted sequence of the at least one intron[[s]].

7. (Currently amended) The computer-implemented security system of claim 6, wherein the ~~system for~~ receiving the encrypted sequence of the at least one exon[[s]] and ~~the~~ unencrypted sequence of the at least one intron[[s]] comprises a bioinformatics database for receiving nucleotide chain queries.

8. (Currently amended) A method for transmitting a nucleotide chain sequence, wherein the nucleotide chain sequence comprises at least a portion of a genome of an organism, the method comprising:

identifying a sequence of at least one exon[[s]] and a sequence of at least one intron[[s]] in the nucleotide chain sequence;

selectively encrypting the sequence of only the at least one exon[[s]] identified in the nucleotide chain ~~to generate encrypted exons and unencrypted introns;~~

transmitting the encrypted sequence of the at least one exon[[s]] and the unencrypted sequence of the at least one intron[[s]];

receiving the encrypted sequence of the at least one exon[[s]] and the unencrypted sequence of the at least one intron[[s]];

decrypting the encrypted sequence of the at least one exon[[s]];

regenerating the nucleotide chain sequence from the decrypted sequence of the at least one exon[[s]] and unencrypted sequence of the at least one intron[[s]]; and

outputting the regenerated nucleotide chain sequence.

9. (Canceled)

10. (Previously presented) The method of claim 8, comprising the further step of querying a bioinformatics database with the received nucleotide chain sequence.

11. (Currently amended) The method of claim 8, wherein the encrypted sequence of the at least one exon[[s]] and the unencrypted sequence of the at least one intron[[s]] are transmitted in at least one XML document.

12. (Currently amended) The method of claim 8, wherein the encrypted sequence of the at least one exon[[s]] and the unencrypted sequence of the at least one intron[[s]] are transmitted using web services.

13. (Currently amended) The method of claim 8, wherein the step of selectively encrypting the sequence of only the at least one exon[[s]] utilizes cipher block chain encrypting.

14. (Currently amended) A program product stored on a recordable medium for encoding a nucleotide chain sequence, wherein the nucleotide chain sequence comprises at least a portion of a genome of an organism, the program product comprising:

means for identifying a sequence of at least one exon[[s]] and a sequence of at least one intron[[s]] in the nucleotide chain sequence;

means for selectively encrypting only the sequence of the at least one exon[[s]] identified in the nucleotide chain sequence to provide security over a network; and

means for outputting the nucleotide chain sequence including both the encrypted sequence of the at least one exon[[s]] and the ~~non-un~~encrypted sequence of the at least one intron[[s]] over the network, wherein the encrypted sequence of the at least one exons~~are~~ is subsequently decrypted by a secure process to regenerate the nucleotide chain sequence.

15. (Currently amended) The program product of claim 14, wherein the encrypted sequence of the at least one exon[[s]] and unencrypted sequence of the at least one intron[[s]] are stored in at least one XML document.

16. (Currently amended) The program product of claim 14, wherein the means for selectively encrypting only the sequence of the at least one exon[[s]] utilizes cipher block chain encrypting.

17. (Currently amended) A program product stored on a recordable medium for decoding an encoded nucleotide chain, wherein the nucleotide chain sequence comprises at least a portion of a genome of an organism, the method comprising:

means for identifying an encrypted sequence of at least one exon[[s]] and an unencrypted sequence of at least one intron[[s]] in the encoded nucleotide chain sequence;

means for selectively decrypting only the sequence of the at least one exon[[s]] identified in the encoded nucleotide chain sequence;

means for reassembling the sequence of the at least one exon[[s]] and the sequence of the at least one intron[[s]] to generate a decoded nucleotide chain sequence; and

means for outputting the decoded nucleotide chain sequence.

18. (Currently amended) The program product of claim 17, wherein the sequence of the at least one exon[[s]] and the sequence of the at least one intron[[s]] are stored in at least one XML document.

19. (Currently amended) The program product of claim 17, wherein the means for selectively decrypting only the sequence of the at least one exon[[s]] utilizes cipher block chain decrypting.

20. (Previously presented) The program product of claim 17, further comprising means for querying a bioinformatics database with the decoded nucleotide chain sequence.